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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/672,007	09/29/2000	Carl Fredric Ulf Kronestedt	040020-296	2990

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EXAMINER

MEHRA, INDER P

ART UNIT	PAPER NUMBER
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2666

DATE MAILED: 10/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/672,007

Applicant(s)

KRONESTEDT, CARL FREDRIC
ULF

Examiner

Inder P Mehra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-17 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is in response to Amendment dated: 7/23/04. Based on this amendment, claims 1, 13 and 17 have been amended, and claims 6 and 18 haven cancelled. Claims 1-5, 7-17, and 19 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 2-5, 7-10, 12, 14, 16 recites the limitation "A method" in line 1. There is insufficient antecedent basis for this limitation in the claim. These are dependent claims, therefore, "A method" should be changed to "the method".

5. Claim 1 recites the following limitations:

- "said transmission quality" inline 10.
- "said change of central coding scheme", in line 20

There is insufficient antecedent basis for this limitation in the claim.

6. Claim 3-5, 7-9 recite the following limitations:

- "said first or said second radio channel" in line 2 of claim 3.
- "said number of radio channels" in line 2 of claim 4.

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- "said radio channels" in line 2 of claim 5.
- "the other group" in line 3 of claim 5.
- "said radio link" in line 1 of claim 7.
- "said mobile station" and the measurement result" in line 2 of claim 8.
- "said first channel", "said second channel", "uplink", downlink", said first coding scheme", said second coding scheme" in claim 9.
- "said second radio channel", said second to said first coding scheme", the first radio channel" in claim 10.
- "the transmitter antenna", the transmission quality", and "the addition" in claim 13.

There is insufficient antecedent basis for this limitation in the claim.

There are similar limitations which lack antecedent basis in rest of the claims, which should be corrected.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-5, 7-8, 10-11, 15, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over admission of applicants prior art in view of **Raith** (WO 97/15131) and in

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further view of **Jones** (GB 2,318,252).

Regarding claims 1, 10, 11, 15, 17, and 19 applicant's prior art teaches a mobile radio network including one cell corresponding to a number of mobile stations in which channel coding provides redundant information (pg 2 lines 33-34, pg 3 lines 1-2), transmission occurs via a first frequency hopping radio channel (pg 2, lines 15-17) and transmission quality is measured on a first radio channel (pg 3 lines 10-11).

Applicants prior art admission fails to teach switching from the first channel-coding scheme to a second channel-coding scheme and switching radio channel from frequency hopping to non-frequency hopping.

Raith discloses changing channel coding based upon quality of first transmission rate (pg 18 line 23-31).

Jones further discloses a frequency allocation system in which a call assigned to a non frequency-hopping channel is deemed bad can be reassigned to a frequency-hopping channel (pg 10 line 8-12). The channel of channel coding with the switching between frequency hopping and non-frequency hopping essentially randomizes the signal to interference ratios encountered thus, improving the radio conditions and decreasing the bit error rate.

Furthermore, Jones, in reference to figs. 5; and 6A, blocks 2-5, discloses "the quality estimator determines whether the signal strength is satisfactory and if not a hopping channel is assigned to the call subject to availability", refer to page 10 lines 14-23.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the applicant's admitted prior art to include a function to switch channel coding and

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radio frequency based upon measured quality as taught by Raith and Jones in order to achieve improved performance and diversity.

Regarding claim 2, the admitted prior art teaches changing the coding scheme in response to comparison and measurements result fulfils a preset criterion that qualifies change of coding scheme (evaluate the quality of a radio connection to which a given radio channel has been allocated and to select a coding scheme with which the highest possible data rate is obtained pg 5 lines 17-21).

Regarding claims 3-5, the applicant discloses the claimed invention except for radio channel transmission taking place within a cell and radio channels divided into group of frequency hopping and non-frequency hopping.

Jones discloses two frequencies assigned to a cell and frequencies f_0 and f_1 are assigned to a cell (pg 5 lines 19-21) and operation in accordance of GSM protocol of two modes of operation, fixed frequency and frequency hopping (pg 5 lines 13-36), and pg. 5 lines 30-36.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combination of the admitted prior art and Raith to include a means for measuring the channel coding in order to allow for frequency reuse and to exploit the advantages of frequency hopping and non-frequency hopping thereby improving the quality of a signal.

Regarding claim 7, the admitted prior art teaches radio link (RL) includes an uplink and a downlink which are controlled separately in accordance with the method steps (**uplink, link**

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from the mobile station to the base station and a downlink, link from the base transceiver station BTS to a mobile station pg 3 lines 11-20).

Regarding claim 8, the admitted prior art teaches, “wherein said measurement is effected in downlink in said downlink in said mobile station (MS) and the measurement result is sent in uplink on PACCH for evaluation, refer to page 3 lines 12-15).

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **admission of applicants prior art** in view of **Raith** (WO 97/15131) and in further view of **Jones** (GB 2,318,252) and **Posti et al** (US Patent No. 6,406,794), hereinafter, Posti.

Regarding claim 12, applicant’s prior art , Raith and Jones disclose all the limitations of subject matter of this claim, with the exception of the following limitation, which is disclosed by Posti:

- base station controller that comprises a switch connection, and a base transceiver station connection (BTS) characterised by means for carrying out the method according to claim 1, refer to fig. 1 and col. 2 lines 3-22.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the applicant’s admitted prior art to include a function to switch channel coding and radio frequency based upon measured quality as taught by Raith, Jones and Posti in order to achieve improved performance and diversity.

10. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over admission of

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applicants prior art in view of **Raith** (WO 97/15131) and in further view of **Alamouti** (2003/0133516).

Applicants admitted prior art teaches a mobile radio network including one cell corresponding to a number of mobile stations in which channel coding provides redundant information; transmission occurs via a first frequency hopping radio channel and transmission quality is measured on a first radio channel.

Applicant's prior art admission fails to teach switching from the first channel-coding scheme to a second channel-coding scheme and switching between two antennas.

Raith discloses changing channel coding based upon quality of first transmission rate (pg 18 line 23-31).

Alamouti et al. further discloses time-space diversity coding employing two transmitter antennas in which transmission occurs on selected antenna (par 0014 and 0015).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the applicants admitted prior art to include a function to switch channel coding and antennas based upon measured quality as taught by Raith and Alamouti in order to achieve improved performance, reduce cost, power consumption in GSM systems and to reduce fading.

11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over admission of applicants prior art in view of **Raith** (WO 97/15131) and in further view of **Alamouti** (2003/0133516) and **Dent** (US Patent No. 6,151,310).

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Regarding claim 14, applicant's prior art, Raith and Jones disclose all the limitations of subject matter of this claim, with the exception of the following limitation, which is disclosed by Dent:

* wherein antenna switching is effected for each time slot (T/S), refer to col. 4 lines 44-50.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the applicant's admitted prior art to include a function to switch channel coding and radio frequency based upon measured quality as taught by Raith, Jones and Dent in order to achieve improved performance and diversity.

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over **admission of applicants prior art** in view of **Raith** (WO 97/15131) and **Jones** (GB 2,318,252), in further view of **Sancho et al** (US Patent No. 6,778,831), hereinafter, Sancho.

Regarding claim 12, applicant's prior art, Raith and Jones disclose all the limitations of subject matter of this claim, with the exception of the following limitation, which is disclosed by Sancho, refer to col. 2 line 59 through col. 3 line 5:

- measuring the transmission quality on said second radio channel;
- starting channel coding of said stream of user data, due to the transmission quality on said second radio channel reaching a second threshold value;
- changing radio channel for said transmission from said second radio channel to a third frequency hopping radio channel, in connection to said starting channel coding.

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It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the applicant's admitted prior art to include a function to switch channel coding and radio frequency based upon measured quality as taught by Raith, Jones and Sancho in order to achieve improved performance and diversity.

Allowable Subject Matter

13. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. Claim 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Applicant argues that applying the teachings of Jones in a system where all channels may be frequency hopping, then frequency hopping should be applied for all channels in order to enhance the quality.

In response, it is stated that this is not claimed by applicant. **However, this is disclosed by Posti et al (US Patent No. 6,466,794), refer to col. 2 lines 42-47.**

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Applicant argues, “the applicant’s invention is based on the insight that for channel coding scheme that does not append redundant information to the transmitted data, the quality is improved by use of a non-hopping channel, which Jones clearly teaches away.

In response, it is stated that Jones discloses, in reference to fig. 6A, switching to “Non-hopping” channel, when quality is good, refer to box 4.

In the light of above explanation, arguments by applicant are not persuasive.

Response to Arguments

16. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Inder P Mehra whose telephone number is 571-272-3170. The examiner can normally be reached on Monday through Friday from 8AM to 5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Inder P Mehra
Examiner
Art Unit 2666


DANGTON
PRIMARY EXAMINER